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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,857	07/14/2003	Jerry Wang	MR3003-51	3803

4586 7590 04/05/2005

ROSENBERG, KLEIN & LEE  
3458 ELLICOTT CENTER DRIVE-SUITE 101  
ELLICOTT CITY, MD 21043

EXAMINER

HUYNH, KIM NGOC

ART UNIT	PAPER NUMBER
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2182

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/617,857

Applicant(s)

WANG ET AL.

Examiner

Kim Huynh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4-5, 8-21 are rejected under 35 U.S.C. 103(a) as obvious over Islam et al. (US 5,950,230) in view of Talagala et al. (US 6,742,081).

Claims 1, 5 and 20 Islam discloses a disk administrating system for disk in multiple disk-arrays, comprising: an array configuration (table 1) for a multiple disk-arrays system containing at least one disk array having: an array signature field (channel number) for identifying a disk in said disk array or in a span array (identify the type of adapter supporting the disk array), an array information for recording at least one setting (RAID level, RaidCache param) and at least one status of said disk array (status of logical drive, UCHAR usState); a disk information (NoOfChunUnits) for recording at least one information in each disk of each disk array.

Islam does not disclose a serial check sum field for of each disk in the disk array. However, Islam discloses the operating parameters are used to keep track of bad stripes and failing sectors using a binary search algorithm (col. 13-14) and the configuration data also include field for tracking the detail of each data bock in a bad stripe table in the configuration sector (col. 14, ll. 15-22). Talagala discloses (Fig. 6C) a

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block remapping table having a checksum field stored in a segment of a disk to keep track of all physical segments for guarding against errors caused by data corruptions due to bad sectors in order allow access of the checksum without incurring additional I/O overhead or increasing the size of the configuration table (col. 11, l. 41 to col. 12, l. 13). Since checksum is the most simple and common error detection scheme in detecting grabbed messages, it would have been obvious to one having ordinary skill in the art to provide a checksum field in the configuration table as taught by Talagala to keep track of the bad stripes and failing sectors while benefit from no increase of I/O overhead or size of the configuration table.

Claim 2, Islam discloses the array configuration is arranged at the last sector of the disk in a disk array (col. 6, l. 62 to col. 7, l. 2).

Claims 8, 12, 13, and 15, Islam discloses the array information having array type field (RAID level, RaidCache param); disk number field (ucNoOfLogDrv) and available capacity field (ulLogDrvSize), array broken flag field (col. 7, ll. 3-18), size field of recorded data stripe (ucStripeSize), serial number field 107.

Claim 17, Islam discloses the disk information comprises boot field (boot\_cdr), enhance field (rebuildRate), serial checksum field (as discussed in claim 1 above) and disk sequence/function field (NoOflogDrv).

Claims 9-12, 14, 16, 18, 19, 21, Islam does not specify sizes of the fields as claimed. However, it would have been obvious to one having ordinary skill in the art to vary the size of the field to the appropriate size as a matter of choice in order to appropriately storing the data in the field to enable the synchronization of all copies of

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the configuration data (abstract) without increase I/O overhead or the size of the configuration table (Talagala, col. 11, l. 41 to col. 12, l. 13).

It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 3 and 6-7 are rejected under 35 U.S.C. 103(a) as obvious over Islam in view of Talagala as discussed above and further in view of Patel et al. (US 6,799,284).

Claims 3 and 6, Islam in combination with Talagala does not disclose a version ID to record a version of the firmware in the array and the checksum is numerated from a model number, serial number and firmware version. Patel discloses the need for keeping track of the version number (col. 4, ll. 45-67) in order to updating/reconfigure the system without downtime and the checksum is used to ensure that accidental corruption of the bitmap version number is not misinterpreted as an actual intended change in the version number (col. 5, ll. 15-18). Please note the model and serial numbers of each disk are also parameters in considering firmware update (i.e. numerating the checksum value).

It would have been obvious to one having ordinary skill in the art to include a version number field and calculating the checksum using disk ID parameters in order to provide and to ensure correct update of RAID driver (firmware software) without down time as taught by Patel.

As for the size of the checksum of claim 7, see discussed related to varying sizes rejection above.

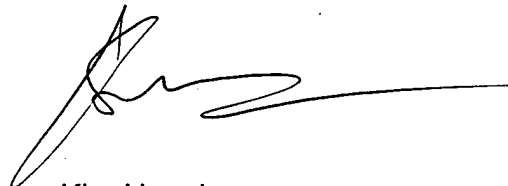
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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kim Huynh whose telephone number is (571) 272-4147272-4147.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kim Huynh  
Primary Examiner  
Art Unit 2182

KH  
4/2/05